## REMARKS

Applicant respectfully requests reconsideration of the present application. Claims 1-48 stand rejected in the Office Action. Claims 1, 6, 8, 12-24, and 39-40 have been amended herein. Claims 25-38 has been canceled herein. Support for the amendments may be found in the Specification (as published), for instance, at ¶¶ [0041]-[0042]. It is respectfully submitted that no new matter has been added to the present application. Reconsideration of the above-identified application in view of the above amendments and the following remarks is respectfully requested.

**Rejections based on 35 U.S.C. § 101**

Initially, the Applicants note that the scope of subject matter eligible for patent protection is defined by judicial exceptions and 35 U.S.C. § 100-101. The judicial exceptions prohibit patents on abstract ideas, laws of nature, and natural phenomena. Section 100(b) defines process to mean "process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." Moreover, Section 101 states "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title." The Supreme Court and Federal Circuit have recognized that the scope of statutory subject matter is broad. *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09 (1980) (Congress chose the expansive language of 35 U.S.C. § 101 so as to include "anything under the sun that is made by man" as statutory subject matter.) Recently, the Court of Appeals for the Federal Circuit applied a machine-or-transformation test. *In re Bilski,* 545 F. 3d 943 (Fed. Cir. 2008) ("*Bilski*").

Claims 1-24, 39 and 40 stand rejected under 35 U.S.C. § 101.

**Claims 1-11 and 40**

With reference to claims 1-11 and 40, independent claims 1 and 40 are directed to a computer-implemented method for determining an amount of work provided by a health care provider for one or more patients. In particular, claims 1 and 40 have been amended herein to recite "calculating, with a computer processor, a work score…"

The United States Supreme Court has recognized that the expansive language of 35 U.S.C. § 101 includes as statutory subject matter "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09 (1980). The USPTO has adopted the Supreme Court's interpretation and has stated that, in practice, the complete definition of the scope of 35 U.S.C. § 101 "is that any new and useful process, machine, manufacture or composition of matter under the sun that is made by man is the proper subject matter of a patent." MPEP 2106(IV)(A). More specifically, the Federal Circuit, at *Bilski*, stated that "[a] claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing…" *Bilski, 961-62*.

As amended, claims 1 and 40 are patent-eligible under § 101 as they (1) are tied to a computer processor and (2) transform the data into a work score through a calculation step performed by the computer processor. As such, claims 1-11 and 40 are statutory and therefore Applicants respectfully request withdrawal of the rejection of claims 1-11 and 40 under 35 USC § 101.

**Claims 12-24 and 39**

With reference to claims 12-24 and 39, independent claims 12 and 39 are directed to "computer storage media having computer-executable instructions embodied thereon, that when executed by a computing system having a processor and memory, cause the computing

system to perform a method..." Applicants respectfully submit that independent claims 12 and 39 are directed to statutory subject matter.

More specifically, the MPEP states that "computer programs are often recited as part of a claim." MPEP 2106.01(I). In considering such claims, "USPTO personnel should determine whether the computer program is being claimed as part of an otherwise statutory manufacture or machine. In such a case, the claim remains statutory irrespective of the fact that a computer program is included in the claim." *Id.*; *see also In re Beauregard*, 53 F.3d 1582 (Fed. Cir. 1995). "The same result occurs when a computer program is used in a computerized process where the computer executes the instructions set forth in the computer program." MPEP 2106.01(I). Recently, in *Ex Parte Bo Li*, a decision by the Board of Patent Appeals and Interferences following *Bilski*, the Board deemed a computer implemented program to generate reports to be patent eligible subject matter. *See Ex Parte Bo Li*, Appeal 2008-1213 (BPAI 2008). As such, Beauregard claims remain patent eligible.

As such, claims 12-24 and 39 are statutory under 35 USC § 101. Applicants respectfully request withdrawal of the rejection of claims 12-24 and 39 under 35 USC § 101.

**Rejections based on 35 U.S.C. § 103**

Title 35 U.S.C. § 103(a) declares, a patent shall not issue when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." The Supreme Court in *Graham v. John Deere* counseled that an obviousness determination is made by identifying: the scope and content of the prior art; the level of ordinary skill in the prior art; the differences between the claimed invention and prior art references; and secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

To support a finding of obviousness, the initial burden is on the Office to apply the framework outlined in *Graham* and to provide some "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l Co. v. Teleflex Inc.,* 127 S. Ct. 1727 at 1741, 82 USPQ2d at 1396 (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) with approval)." *See also* MPEP § 2142. "[R]ejections on obviousness cannot be sustained with mere conclusory statements." *Id.* Thus, in order to establish a *prima facie* case of obviousness the Office must provide "a clear articulation of the reason(s) why the claimed invention would have been obvious" based on factual findings made while conducting the *Graham* factual inquires. *See* MPEP § 2143. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. *Id.*

Claims 1-5, 7-17 and 19-24 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whiting-O'Keefe (U.S. Patent No. 6,061,657, hereinafter the "Whiting-O'Keefe reference") in view of Pollack (U.S. Patent No. 5,809,477, hereinafter the "Pollack reference") in further view of Andre et al. (U.S. Patent No. 7,155,399, hereinafter the "Andre reference). As the asserted combination of references fails to teach or suggest all of the features set forth in the rejected claims, Applicants respectfully traverse the rejection as hereinafter set forth.

**Claim 1**

Independent claim 1 recites *a "computer-implemented method for determining an amount of work provided by a health care provider for one or more patients."* The method recites *"obtaining data for one or more patients directly from a primary clinical information system."* The method also recites *"**calculating, with a computer processor, a work score for each of the one or more patients utilizing the data.**"* *"**[T]he work score indicates a quantity of***

***personnel hours anticipated to serve each of the one or more patients***." The method also recites "*storing the work score.*"

To the contrary, the Whiting-O'Keefe reference discloses a mathematical model that results in expected charges for a patient based on variables and regression coefficients. *See Whiting-O'Keefe reference*, col. 2, lines 52-56. In particular, the Whiting-O'Keefe reference relates to "estimating charges for treating patients with defined primary and collateral illnesses." *See Id.*, col. 1, lines 14-15. Similarly, the Pollack reference is generally directed to quantifying the severity of condition of patients of a pediatric hospital. *See Pollack reference*, Abstract. The severity of condition can be used to calculate a probability of death during hospitalization as well as an estimated length of stay for a patient. *Id.* Additionally, to the contrary of claim 1, the Andre reference is directed to generating a schedule for multiple employees having varied skill sets. *See Andre reference*, Abstract.

The Office asserts that the Whiting-O'Keefe reference teaches utilizing the data to calculate a work score for each of the one or more patients. *See Final Office Action*, p. 4. In support of the assertion, the Office relies on FIG. 2, items 17-29 (entirety of FIG 2); FIG 3; and related text. *Id.* However, as discussed hereinafter, the Whiting-O'Keefe reference fails to teach or suggest "***calculating**, with a computer processor, **a work score** for each of the one or more patients utilizing the data*" as recited in claim 1. Instead, FIG 2, FIG 3, and the related text within the Whiting-O'Keefe reference are very clearly directed to estimating "charges" for various episodes and complete illnesses. *See Whiting-O'Keefe reference*, col. 7, lines 54-56. For example, the description of the figures provided by the Whiting-O'Keefe reference describes FIG. 3 as outlining "the procedures used **to estimate healthcare charges**." *See Id.*, col. 5, lines 14-15.

The Office is **required** to view independent claim 1 **as a whole**. *See MPEP § 2141(II)(A).* In particular, the MPEP states "[w]hen applying 35 USC 103, the following tenets of patent law **must be adhered to**: (A) The claimed invention must be considered as a whole…" *Id.* When claim 1 is viewed as a whole, a work score is defined as "a *quantity of personnel hours* anticipated to serve each of the one or more patients." Therefore, the references, when combined or alone, must teach or suggest "***calculating**, with a computer processor, **a work score** for each of the one or more patients utilizing the data, wherein the **work score indicates a quantity of personnel hours anticipated to serve each of the one or more patients***." Clearly, the charge estimation of the Whiting-O'Keefe reference fails to teach the same.

The Office concedes that the Whiting-O'Keefe reference fails to teach a work score that indicates a quantity of personnel hours anticipated to serve each of the one or more patients. *See Final Office Action*, p. 5 ("Whiting-O'Keefe/Pollack fails to teach…the work score indicates a quantity of personnel hours anticipated to serve each of the one or more patients").

Applicant respectfully submits that the Office's assertion that the Whiting-O'Keefe reference teaches or suggests calculating a "work score," as defined in claim 1, is improper as the it is unclear how the Whiting-O'Keefe reference can teach or suggest calculating a work score when the Office admits that the Whiting-O'Keefe reference fails to teach a works score as defined by the claim.

Even when the Whiting-O'Keefe reference and the Andre reference are viewed in combination, Applicant respectfully submits that the combination of references (including the Pollack reference) fail to teach or suggest "***calculating**, with a computer processor, **a work score** for each of the one or more patients utilizing the data*" as recited in claim 1.

For example, in an effort to cure the recognized deficiency of the Whiting-O'Keefe reference, the Office relies on the Andre reference to teach a works score that indicates

a quantity of personnel hours anticipated to serve each of the one or more patients. *See Final Office Action*, p. 5. The Office relies on the entirety of FIG. 2; Fig. 3, items 202-208 and 214; FIG. 4, items 310 and 320; as well as all related text. *Id.*

However, the Andre reference is instead directed to generating a schedule for multiple employees when an employee is added or removed from the schedule. *See e.g., Andre reference,* Abstract. It is respectfully submitted that the portion relied upon by the Office fails to teach or suggest "*the work score indicates a quantity of personnel hours anticipated to serve each of the one or more patients*" as recited in claim 1.

For example, item 310 of FIG. 4 in the Andre reference is a "CALCULATE WORK_PERFORMED(e)." However, the related discussion in the Andre reference states "[t]he work performed by the changed employee is calculated at 310, and effect of the work on performance is distributed across each queue at 314." *Andre reference*, col. 5, lines 55-57. The item 310 of the Andre reference is therefore concerned with calculating an amount of work that is performed by an employee if that employee is added or removed from a schedule, this is not a **quantity of personnel hours to serve a patient**. Applicant respectfully submits that at no point does the Andre reference or any other cited reference equate work performed by an employee added to or removed from a schedule to "*a quantity of personnel hours anticipated to serve each of the one or more patients.*"

Similarly, item 320 of FIG. 4 of the Andre reference is "CALCULATE SCORE OF CHANGE." The related (and very limited) disclosure in the Andre reference surrounding this feature indicates "if the end of the defined period of time period has been reached, the score of the change is calculated at 320." *See Andre reference*, col. 5, lines 65-66. Applicant respectfully submits that item 320 in no way teaches or suggests "*a quantity of personnel hours anticipated to serve each of the one or more patients.*"

As a result, it is respectfully submitted that the Andre reference fails to cure the recognized deficiencies of the Whiting-O'Keefe reference. In particular, it is respectfully submitted that because the Whiting-O'Keefe reference, Pollack reference, and the Andre reference, either alone or in combination, fail to teach or suggest "***calculating**, with a computer processor, **a work score** for each of the one or more patients utilizing the data*" as recited in claim 1. Further, it is respectfully submitted that the Whiting-O'Keefe reference, Pollack reference, and the Andre reference, either alone or in combination, fail to teach or suggest "*the **work score** indicates **a quantity of personnel hours anticipated to serve each of the one or more patients***" as recited in claim 1.

Accordingly, it is respectfully submitted that the Whiting-O'Keefe reference, the Pollack reference, and the Andre reference do not teach or suggest all of the features of independent claim 1. Thus, Applicant respectfully submits that the Whit, Pollack, and Andre references, either alone or in combination, fail to teach or suggest all of the features of independent claim 1. Therefore, a *prima facie* case of obviousness has not been established for independent claim 1. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 1 under 35 U.S.C. § 103(a). Claim 1 is believed to be in condition for allowance and such favorable action is respectfully requested.

Claims 2-5 and 7-11 depend directly or indirectly from independent claim 1. As such, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

**Claim 39**

Independent claim 39 recites *computer storage media having computer-executable instructions embodied thereon that when executed by a computing system having a processor and memory, cause the computing system to perform a method.* The method includes

*obtaining data for one or more patients directly from a primary clinical information system*. The method also includes ***utilizing the data to calculate work for the one or more patients, wherein work includes a measure of personnel hours anticipated for the one or more patients***.

Independent claim 39 recites features similar to those discussed with respect to claim 1 hereinabove. For example, claim 39 recites "*utilizing the data to calculate work for the one or more patients, wherein work includes a measure of personnel hours anticipated for the one or more patients*." As previously discussed, it is respectfully submitted that the Whiting-O'Keefe reference, Pollack reference, and Andre reference, either alone or in combination, fail to at least teach or suggest the same.

Accordingly, it is respectfully submitted that the Whiting-O'Keefe reference, the Pollack reference, and the Andre reference do not teach or suggest all of the features of independent claim 39. Thus, Applicant respectfully submits that the Whit, Pollack, and Andre references, either alone or in combination, fail to teach or suggest all of the features of independent claim 39. Therefore, a *prima facie* case of obviousness has not been established for independent claim 39. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 39 under 35 U.S.C. § 103(a). Claim 39 is believed to be in condition for allowance and such favorable action is respectfully requested.

**Claim 12**

Independent claim 12 recites *computer storage media having computer-executable instructions embodied thereon, that when executed by a computing system having a processor and memory, cause the computing system to perform a method*. The method includes ***calculating***, *with the processor,* ***a work score*** *for each patient in a patient population utilizing data obtained directly from a primary clinical information system, wherein* ***the work score is a value that indicates an amount of work to treat each patient*** *in the patient population*. The

method also includes *storing the work score*. The method also includes ***calculating staffing needs for the population based on the work scores*** *obtained for the patients in the patient population*.

Independent claim 12 recites features similar to those discussed with respect to claim 1. For example, claim 12 recites "*calculating, with the processor, a work score for each patient in a patient population utilizing data obtained directly from a primary clinical information system, wherein the work score is a value that indicates an amount of work to treat each patient in the patient population*." It is respectfully submitted, for at least those reasons previously discussed, the Whiting-O'Keefe reference, Pollack reference, and Andre reference, either alone or in combination, fail to at least teach or suggest "*calculating, with the processor, a work score for each patient in a patient population utilizing data obtained directly from a primary clinical information system, wherein the work score is a value that indicates an amount of work to treat each patient in the patient population*."

Additionally, independent claim 12 recites "***calculating staffing needs for the population based on the work scores*** *obtained for the patients in the patient population*." As previously discussed, Applicant respectfully submits that the reference fail to teach or suggest the work score from which the staffing needs are calculated. As such, it is respectfully submitted that the staffing needs for the population are not taught or suggest as recited in claim 12. Further, the Office concedes that the Whiting-O'Keefe reference fails to teach or suggest "*calculating staffing needs for the population based on the work scores obtained for the patients in the patient population*" as recited in claim 12. *See Final Office Action*, p. 8. The Office asserts that the Pollack reference cures the deficiency of the Whiting-O'Keefe reference. *Id.* In particular, the Office relies on claim 1 of the Pollack reference, which generally is directed to calculating a length of stay for a patient and then allocating a hospital bed to waiting patients.

*See Pollack reference*, col. 19, line 59, through col. 20, line 40. However, at no point does the Pollack reference teach a work score as defined by claim 21 or "*calculating staffing needs for the population based on the work scores obtained for the patients in the patient population*" as it has been relied upon to teach.

For example, the length of stay for a patient in the Pollack reference is calculated to help in determining a number of available beds within the hospital based on a date of admission for the patients and the patient's length of stay. *Id.* Neither a patient's length of stay nor the number or availability of hospital beds in anyway teaches or suggest "*calculating staffing needs for the population based on the work scores...*"

Accordingly, it is respectfully submitted that the Whiting-O'Keefe reference, the Pollack reference, and the Andre reference do not teach or suggest all of the features of independent claim 12. Therefore, a *prima facie* case of obviousness has not been established for independent claim 12. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 12 under 35 U.S.C. § 103(a). Claim 12 is believed to be in condition for allowance and such favorable action is respectfully requested.

Claims 13-17 and 19-24 depend directly or indirectly from independent claim 12. As such, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

**Claim 40**

Independent claim 40 recites *a computer-implemented method for determining the amount of health care provider work for a population of patients*. The method includes ***calculating, with a computer processor, a work score*** *for each patient in a patient population utilizing data obtained directly from a primary clinical information system, wherein* ***the work score is a quantity of personnel hours required to serve each patient*** *in the patient population*

*by a healthcare provider*. The method also includes *storing the work score*. Further, the method includes *calculating staffing needs for the patient population based on the work scores obtained for the each patient in the patient population*.

Independent claim 40 recites features similar to those discussed with respect to claim 1 and claim 12. For at least those reasons, it is respectfully submitted that the Whiting-O'Keefe reference, the Pollack reference, and the Andre reference do not teach or suggest all of the features of independent claim 40. Therefore, a *prima facie* case of obviousness has not been established for independent claim 40. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 40 under 35 U.S.C. § 103(a). Claim 40 is believed to be in condition for allowance and such favorable action is respectfully requested.

**Claims 6 and 8**

Claims 6 and 18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Whiting-O'Keefe in view of Pollack in view of Andre in further view of Richardson et al. (U.S. Patent No. 6,196,654, hereinafter the "Richardson reference").

Claims 6 and 18 depend from claims 1 and 12 respectively. It is respectfully submitted that the Richardson reference fails to cure the deficiencies identified hereinabove with respect to independent claims 1 and 12. By virtue of their dependency to claims 1 and 12, Applicants respectfully request the withdrawal of the § 103(a) rejection of claims 6 and 18.

**Claim 41**

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whiting-O'Keefe in view of Zaleski (U.S. Publication No. 2003/0101076, hereinafter Zaleski). Claim 41 recites *a computerized system for optimizing personnel planning in a healthcare organization. The system* ***includes a work calculation module for calculating a work score*** *for one or more patients.* The system also includes *a staff scheduling and staffing module for identifying*

*healthcare personnel positions to be filled.* The system also includes *a role management module for managing the roles and information regarding personnel.* The system also *includes a workforce outcomes module for determining how effectively healthcare personnel have been used.* The system additionally includes *a demand forecast module for forecasting the volume and type of patients who will present.* The system also includes *a resource dashboard module for displaying information regarding personnel and patients.*

To the contrary, the Zaleski reference is directed to a system for analyzing healthcare data. *See Zaleski reference*, ¶[0003]. In particular, the Zaleski reference is directed to analyzing patient information, including telemetry from acute modalities, and statistical clinical data. *Id.*

The Office asserts the Whiting-O'Keefe reference teaches a work calculation module for calculating a work score for one or more patients. *See Final Office Action p. 32.* As previously discussed with respect to claims 1 and 12, it is respectfully submitted that the Whiting-O'Keefe reference fails to teach such a feature. Instead, the Whiting-O'Keefe reference merely estimates charges for a patient. *See Whiting-O'Keefe reference*, col. 2, lines 52-56. For at least this reason, it is respectfully submitted that the current rejection of claim 41 should be withdrawn.

Additionally, claim 41 recites features previously discussed in the response to Non-final Office Action dated 02/19/2009, which are maintained herein.

Accordingly, it is respectfully submitted that the Whiting-O'Keefe reference as modified by the Zaleski reference does not teach or suggest all of the features of independent claim 41. Thus, Applicant respectfully submits that the Whiting-O'Keefe and Zaleski references, either alone or in combination, fail to teach or suggest all of the features of independent claim 41. Accordingly, Applicant respectfully requests withdrawal of the rejection

of claim 12 under 35 U.S.C. § 103(a). Claim 41 is believed to be in condition for allowance and such favorable action is respectfully requested.

**Dependent claims of claim 41**

Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whiting-O'Keefe in view of Zaleski in further view of Ross, Jr. et al. (U.S. Patent No. 7,076,436, hereinafter Ross). Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whiting-O'Keefe in view of Zaleski in further view of Ross, Jr. et al. (U.S. Patent No. 7,076,436 hereinafter the "Ross reference"). As claims 42 and 43 depend from previously discussed claim 41, it is respectfully submitted that the Ross reference fails to cure the deficiencies of the Whiting-O'Keefe reference and Zaleski reference. As such, Applicant respectfully request withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

Claims 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whiting-O'Keefe in view of Zaleski, in view of Ross, in further view of Richardson. As claims 44 and 45 depend from previously discussed claim 41, it is respectfully submitted that the Richardson reference fails to cure the deficiencies of the Whiting-O'Keefe reference, Zaleski reference, and Ross reference. As such, Applicant respectfully request withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

Claims 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whiting-O'Keefe in view of Zaleski, in view of Ross, in view of Richardson, in further view of Pollack. As claims 46 and 47 depend from previously discussed claim 41, it is respectfully submitted that the Pollack reference fails to cure the deficiencies of the Whiting-O'Keefe reference, Zaleski reference, Ross reference, and Richardson reference. As such, Applicant respectfully request withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whiting-O'Keefe in view of Zaleski, in view of Ross, in view of Richardson, in view of Pollack, in further view of Brandt et al. (U.S. Publication No. 2003/0050797, hereinafter Brandt). As claim 48 depends from previously discussed claim 41, it is respectfully submitted that the Brandt reference fails to cure the deficiencies of the Whiting-O'Keefe reference, Zaleski reference, Ross reference, and Pollack reference. As such, Applicant respectfully request withdrawal of the 35 U.S.C. § 103(a) rejections of these claims as well.

## CONCLUSION

For at least the reasons stated above, claims 1-24 and 39-48 are now in condition for allowance. Applicants respectfully request withdrawal of the pending rejections and allowance of the claims. If any issues remain that would prevent issuance of this application, the Examiner is urged to contact the undersigned – 816-474-6550 or cwfisher@shb.com (such communication via email is herein expressly granted) – to resolve the same.

A two-month extension fee and a Request for Continued Examination fee are submitted herewith. It is believed that no additional fee is due, however, the Commissioner is hereby authorized to charge any amount required to Deposit Account No. 19-2112 referencing Attorney Docket CRNI.108473.

Respectfully submitted,

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